

Introduction to Geometry

April 1, 2008

What is geometry?

- The word geometry derives from the Greek words geo (earth) and metria (measure).
- Essentially, geometry is the study of spatial relationships.
- We will be studying mainly two-dimensional geometry in this course.

What are the goals of this class?

- Students will be able to:
 - Analyze two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
 - Use visualization, spatial reasoning, and geometric modeling to solve problems.
 - Specify locations and describe spatial relationships using coordinate geometry and other representational systems.
 - Apply transformations and use symmetry to analyze mathematical situations.

What will my grade be based on?

- Your grade will be based:
 - Daily assignments (40%)
 - In Class Projects (20%)
 - Quizzes and tests (40%)

All about daily work

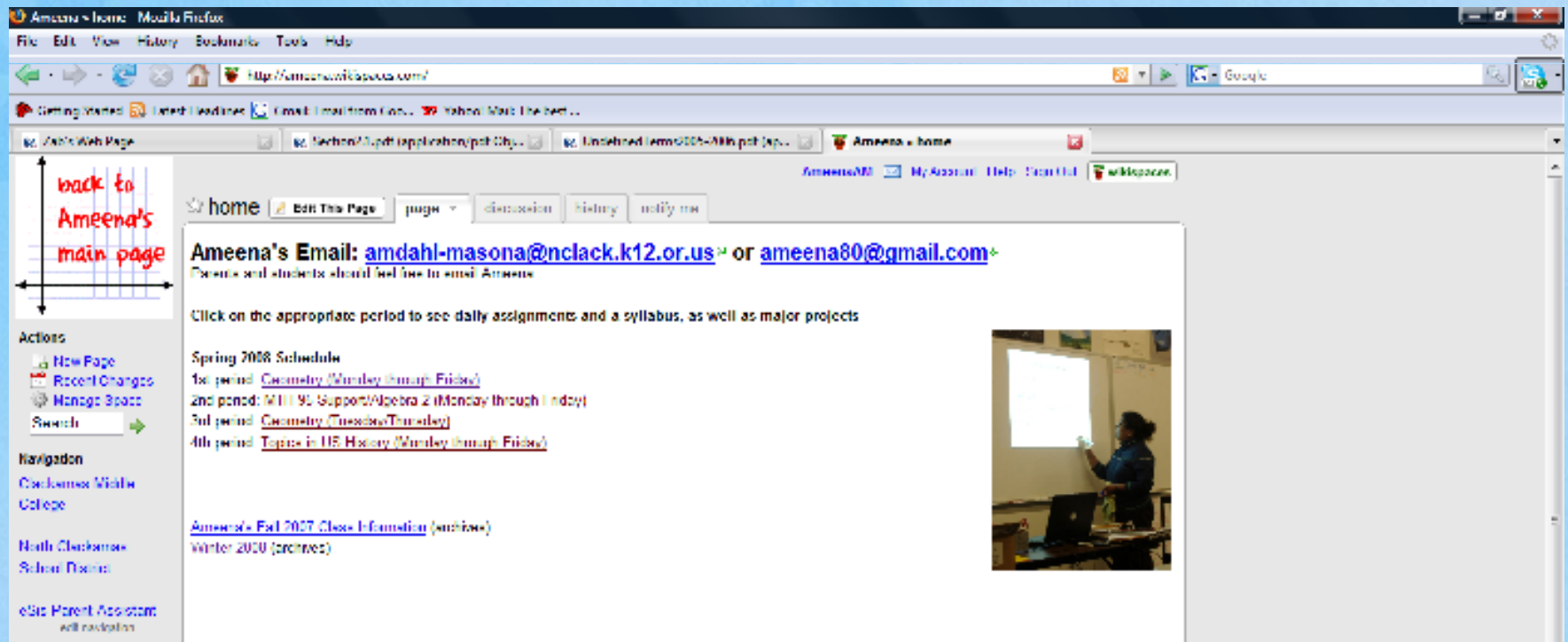
- Daily work is due two days after it is assigned.
- Late work will be marked down 50%.
Work cannot be turned in more than 2 days late.
- You will have time to work on daily work in class.

All about tests and quizzes

- Quizzes will be once a week.
- They will be short (10 or fewer questions).
- Tests will be at the end of a unit.
- They will generally be 25 questions.
- You will be allowed a note card for tests.

Where to get more information

- I maintain a website at <http://ameena.wikispaces.com>, where I upload all powerpoints and list all assignments.



Undefined terms

- Undefined terms have intuitive, rather than concrete meaning.
- These are the important undefined terms that are basic to the study of geometry:
 - Point
 - Line
 - Plane

What is a point?

- According to Euclid, a point is “that which has no size.”
- We represent a point using a dot, but in actuality a point is a specific position in space.
- Points are usually labeled with capital letter.
 - A

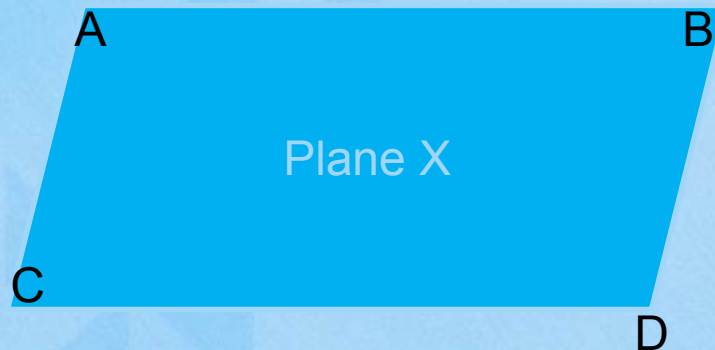
What is a line?

- A line consists of an infinite number of points and extends in two directions without ending.
- Although a picture of a line has some thickness, the line itself has no thickness.
- A line can be named using two of its points, or using a single lower case letter.



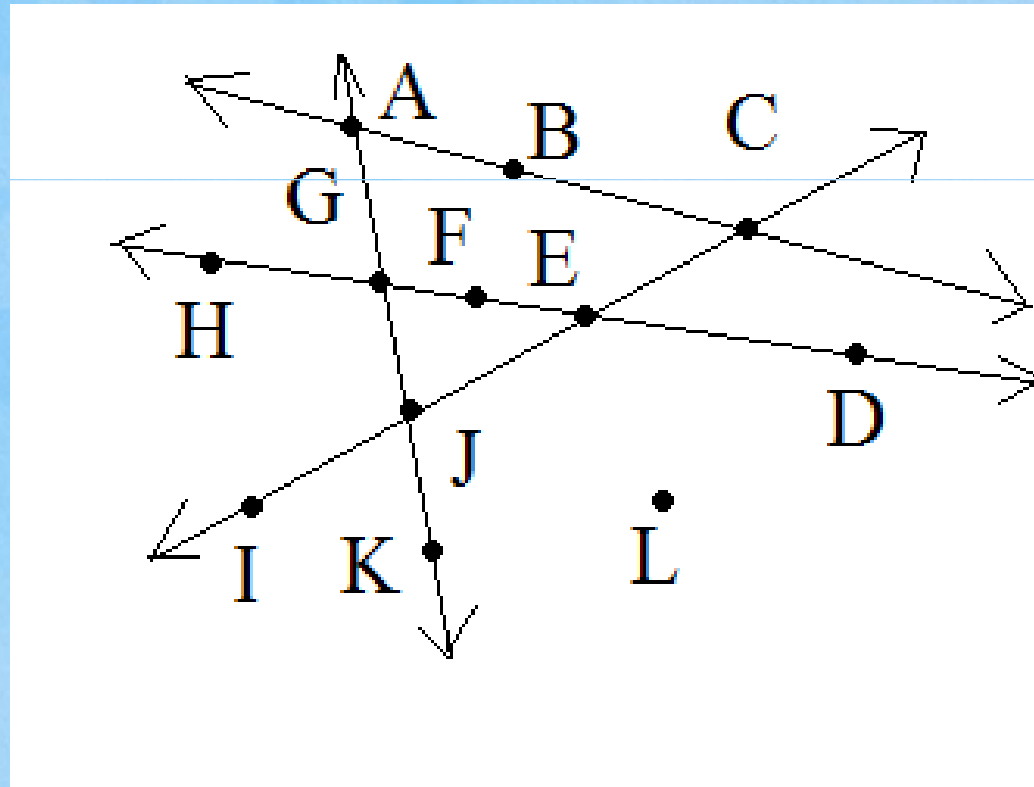
What is a plane?

- A geometric plane is suggested by a wall, floor, desk top, or ceiling.
- Unlike a floor, however, a plane extends forever and has no thickness.
- Usually a plane is drawn using a four-sided figure (even though a plane goes on forever).
- It is named by a capital letter or by points on it.



What does it mean to be collinear?

- Points are collinear if they are on the same line.



Using what we've learned

- Use the figure below to:
 - Identify at least one plane
 - Identify at least two points
 - Identify at least two lines
 - Identify three collinear points

